

A NEW SPECIES AND TWO NEW COMBINATIONS IN
POTENTILLA SECT. *NIVEAE* (ROSACEAE)

David F. Murray

University of Alaska Museum of the North
907 Yukon Drive
Fairbanks, Alaska 99775-6960, U.S.A.
ffdfm@uaf.edu

Reidar Elven

Natural History Museums and Botanical Garden
University of Oslo
P.O. Box 1172 Blindern
NO-0318 Oslo, Norway
reidar.elven@nhm.uio.no

ABSTRACT

Potentilla holmgrenii D.F. Murray & Elven, sp. nov. is described and illustrated. Two new combinations are made: **Potentilla arenosa** (Turcz.) Juz. subsp. **chamissonis** (Hultén) Elven & D.F. Murray and **P. hyparctica** Malte subsp. **elatior** (Abrom.) Elven & D.F. Murray.

RESUMEN

Se describe e ilustra **Potentilla holmgrenii** D.F. Murray & Elven, sp. nov.. Se hacen dos nuevas combinaciones: **Potentilla arenosa** (Turcz.) Juz. subsp. **chamissonis** (Hultén) Elven & D.F. Murray y **P. hyparctica** Malte subsp. **elatior** (Abrom.) Elven & D.F. Murray.

While preparing a treatment of boreal and arctic *Potentilla* for Flora of North America it became necessary to assess how well the names of widespread arctic plants have been applied to Rocky Mountain species. A case in point is *Potentilla nivea* L., in the sense of Eriksen et al. (1999) not Soják (1989).

Whereas *P. nivea* is indeed found in the Rocky Mountain region, some plants so named are morphologically well beyond the limits accepted for the species throughout its circumpolar and boreal-alpine ranges. A densely tufted plant of mountain summits in Nevada and Utah is distinct by its small, compact stature, its ternate leaves with densely floccose petioles and laminae, and leaflets with fewer teeth directed forward and having rounded apices. This new species presented below is named *P. holmgrenii*. It can be distinguished from *P. nivea* by the key provided.

Basal leaves densely hairy on both surfaces; central leaflets with teeth 2–4 per side, apices obtuse to rounded, directed forward, terminal tooth often orbicular and frequently overlapped by adjacent pair of lateral teeth; epicalyx bractlets elliptic, shorter and narrower than sepals; styles 1.2 mm or more in length, without distinct basal papillae _____ **Potentilla holmgrenii**

Basal leaves not densely hairy on upper surface; central leaflets with teeth 3–5 per side, apices acute, not directed forward, terminal tooth not orbicular, not overlapped by adjacent pair of teeth; epicalyx bractlets elliptic or lanceolate, as wide as sepals at the base; styles less than 1.2 mm long, evenly tubular, with distinct basal papillae _____ **Potentilla nivea**

Potentilla holmgrenii D.F. Murray & Elven, sp. nov. (Figs. 1–2). TYPE: NEVADA. WHITE PINE CO.: Mt. Moriah, 6 Jul 1966, Holmgren and Reveal 2818 (HOLOTYPE: NY; ISOTYPES BRY, UTC).

Planta pulvinata. Caudex ramis columnaribus, reliquias congestas atrofuscas stipularum et petiolorum ferens. Laminae foliorum dentibus ellipticis vel obovatis, apicibus obtusis vel rotundatis. Ad *Potentillae niveae* L. affinis sed laminis foliorum supra adpressi-tomentosis, subtus crassifloccosis.

Plants perennial, forming dense cushions to 10 cm in diameter (Fig. 1) and occasionally small mats grayish-white or white, eglandular; caudex woody, stout, strongly ramified with branches 0.4–0.6 cm thick, densely sheathed with persistent, blackish-brown, indurate remains of stipules, petioles and some whole leaves, giving the branches a compact, columnar structure; stems ascending, 2–8 cm, densely white-floccose; leaves basal and cauline (0–1); stipules broadly ovate, obtuse, light brown, proximally glabrous, distally and abaxially with sparse, long, soft hairs, becoming subglabrous; petioles 0.5–2 cm, densely floccose; leaflets three, margins slightly revolute; central leaflet broadly elliptic or obovate, 0.7–1.3 × 0.4–0.6 cm, short-stipitate, base cuneate, incised half way to midvein, teeth 2–4 per side, broadly elliptic to obovate,



FIG. 1. Common cushion form of *Potentilla holmgrenii* (Holmgren and Reveal 2819, UTC 115752 isotype). Scale bar = 2 cm.



FIG. 2. Shoot with and leaf cluster. Note shape and orientation of the teeth (Tiehm 9862, BRY 305045). Scale bar = 2 cm.

apices obtuse to rounded Fig.2), abaxial surface with very dense tomentum, white or grayish-white floccose with some straight, soft, verrucose, subappressed hairs ca. 1 mm long on veins, adaxial surface gray, densely hairy with straight, silky, subappressed hairs ca. 1–1.5 mm long; inflorescence simple or open, 1–2(–3) flowers; bracts lanceolate or ovate; pedicels straight, 0.4–0.7 cm in flower, 1.5–2 cm in fruit, densely floccose and mixed with a few straight, subappressed to subpatent hairs; hypanthium 1.8–2.2 mm. with dense, straight, subappressed hairs and shorter stiff hairs ca. 0.7 mm long; epicalyx bractlets narrowly elliptic, obtuse, margins revolute, gray-green or reddish, 2–2.5 × 0.5–0.9 mm, shorter and narrower than the sepals; sepals broadly lanceolate or triangular, subacute or acute, gray-green, 3–3.5 mm; petals pale yellow, broadly obovate or obcordate, retuse, ± overlapping, 4–5 mm, longer than sepals; stamens ca. 20; filaments 1–2 mm; anthers ca. 0.5–0.4 mm; carpels ca. 30–40; styles tubular, 1.2–1.4 mm, thickened at base and with a few, indistinct papillae, distinctly dilated beneath stigma; achenes pale olive-green, glabrous, 1.1–1.4 × 1 mm.

Habitat.—On wind-swept ridges, fellfields, rocky slopes; 3300–4500 m.

Distribution.—*Potentilla holmgrenii* is known presently from the Schell Creek and Snake ranges of White Pine County in eastern Nevada, and the Deep Creek Range in adjacent Juab County in western Utah.

Etymology.—The name was chosen to honor Noel H. Holmgren, who has long been a student of the intermountain flora. In his treat-

ment of *Potentilla* for the Intermountain Flora (Holmgren 1997), Holmgren called attention to the compact nature of the populations in the Snake and Schell Creek ranges but refrained from treating them as distinct from *P. nivea*.

Specimens examined: **NEVADA. White Pine Co.:** North Schell Peak, 31 Jul 1989, *Mosely 1592A* (BYU, NY, UC); North Schell Peak, 3 Jul 1982, *Lavin 4208* (NY); Shell [sic.], Creek Mts., 13 Jul 1938, *Pennell and Schaeffer, Jr. 22959* (NY); Taft Peak area, 30 Jun 1985, *Tiehm 9862* (BRY, COLO, NY, RM, UTC,); Mt. Wheeler, 20 Jun 1928, *Cottam 3303* (BRY); Wheeler Peak, 20 Jul 1941, *McVaugh 6032* (UTC); Mt. Wheeler, 19 Jul 1954, *Langenheim s.n.* (UC); Mt. Wheeler, 5 Aug 1985, *Holmgren and Vincent 10970* (NY, UTC, UC); Mt. Wheeler, 3 Jul 1980, *White and Neese 323* (BYU); NW shoulder Wheeler Peak, 9 Jul 1969, *Lewis 1698* (RM); Wheeler Peak, 29 Jul 1976, *Albee 3319* (NY); Mt. Moriah, 2 Aug 1999, *Niles et al. 5817* (RENO). **UTAH. Juab Co.:** Deep Cr. Mts., 13 Jul 1983, *Goodrich 19024* (BRY, NY).

Additionally, our treatment of arctic *Potentilla* requires two new combinations that are presented below.

Potentilla arenosa (Turcz.) Juz. is the common, widespread arctic and boreal-alpine species to which the name *P. hookeriana* has been largely misapplied, with *P. hookeriana* sensu str. now restricted to the mountains of Colorado, Nevada, and Utah. *Potentilla arenosa* comprises two largely allopatric subspecies that differ only, but significantly, in one character: the petiole hairs. Subspecies *arenosa* is characterized by petioles with two layers of hairs: long and straight and short and stiff or curly. Subspecies *chamissonis* has petioles with only long, straight, verrucose hairs.

Potentilla arenosa (Turcz.) Juz. subsp. ***chamissonis*** (Hultén) Elven & D.F. Murray, comb. nov. BASIONYM. *Potentilla chamissonis* Hultén, Bot. Not. 1945[98]:140. 1945; *P. hookeriana* Lehmann subsp. *chamissonis* (Hultén) Hultén; *P. nivea* sensu Soják (1989), non L.; *P. nivea* L. subsp. *chamissonis* (Hultén) Hiitonen.

Habitat.—On cliffs, dry heath tundra, ridge tops.

Distribution.—southern Greenland, Man., N.W.T., Nunavut, Que., n. Europe.

We have not been able to confirm reports by Hultén (1968) of this subspecies from Alaska or the Yukon Territory.

Southern arctic plants of *Potentilla hyparctica* Malte differ from the high arctic ones in several presumably independent features. The two forms are sympatric in Greenland, Baffin Island, northern Alaska, and Yukon Territory and appear there to remain distinct. We propose for the southern taxon the combination *P. hyparctica* subsp. *elator*.

Potentilla hyparctica Malte subsp. ***elator*** (Abrom.) Elven & D.F. Murray, comb. nov. BASIONYM. *Potentilla emarginata* Pursh var. *elator* Abrom., Biblioth. Bot. 8(Heft 42, part 2):8. 1899; *P. hyparctica* var. *elator* (Abrom.) Fernald.

Plants mostly 4–20 cm, sparsely hairy; leaflets broadly obovate, lobes broadly oblong, rounded or obtuse, central leaflet long-stipitate (2–3 mm), base broadly cuneate or rounded; inflorescence 1–3(–5)-flowered; epicalyx bractlets broadly oblong-ovate, 2–5 mm wide; sepals rounded or obtuse.

Habitat.—In moist ericaceous heath, snowpatch meadows, moist arctic and alpine tundra, rocky outcrops, solifluction slopes, and talus.

Distribution.—Greenland; Alta., B.C., Nfld. and Labr., N.W.T., Nunavut, Que, Yukon; Alaska; ne. Asia.

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